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DISCLOSURE TITLE: Clipped Decoupled Twin-Carrier Module for IC Memory Chips

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DISCLOSURE TEXT:

- A clipped decoupled twin-carrier module for IC memory chips is disclosed which allows a very flat assembly, as no pins are required for connecting the two chip carriers. Fig. 1 shows a horizontal version of the twin-carrier module. Two chip carriers 1 are mounted back-to-back. A supply voltage decoupling capacitor 2 is clamped between the two chip carriers 1. The assembly is held together by clips 3 that are soldered to pads on carriers 1. Joint signals and the power input for both chips 4 are applied through clips 3. Carriers 1 are provided with a metallization (wiring) which is surrounded by a ring 5 holding cap 6 to hermetically seal the chips. The proposed module allows all known chip attachment techniques, such as wire bonding or C4 flip-chip solder connections. Low-inductance supply voltage decoupling of the proposed module is achieved by

directly connecting the decoupling foil capacitor to the power pads of each carrier under the clips. No extra fixing means are required for assembling the two carriers 1 and decoupling foil capacitor 2, as clips 3 provide preliminary fixing means for carriers 1. It is even possible to test the assembly in that state prior to soldering clips 2, so that any rework may be readily done. Decoupling foil capacitor 2 acts as a reference plane to reduce the signal line coupling and to define signal line impedance. Fig. 2 shows a vertical version of the twin-carrier module. It differs from the horizontal version only by the use of two different clips, namely clips 3 and 3a.

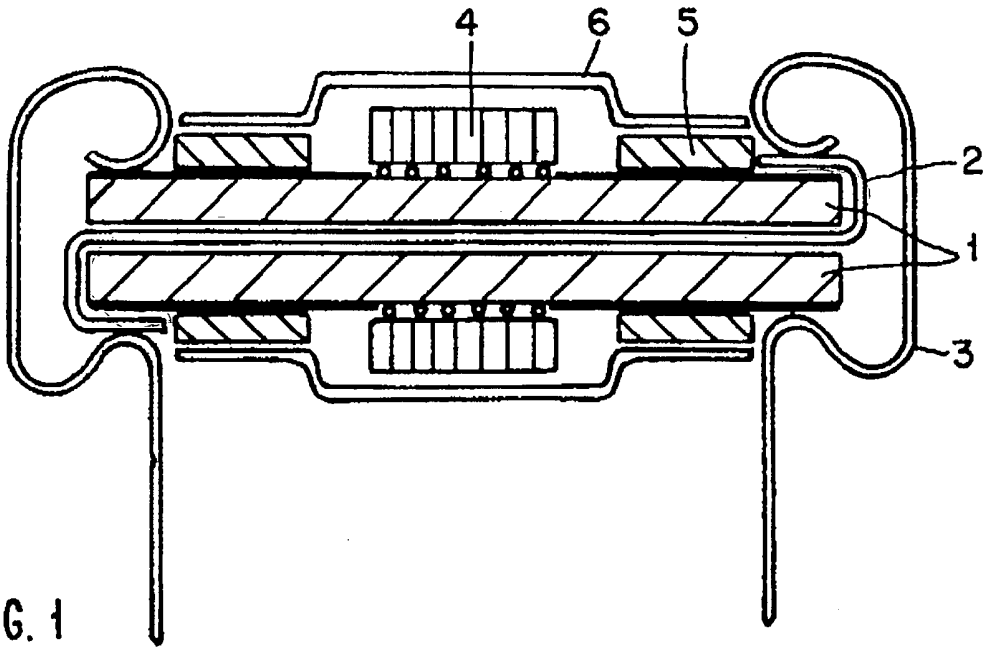

FIG. 1

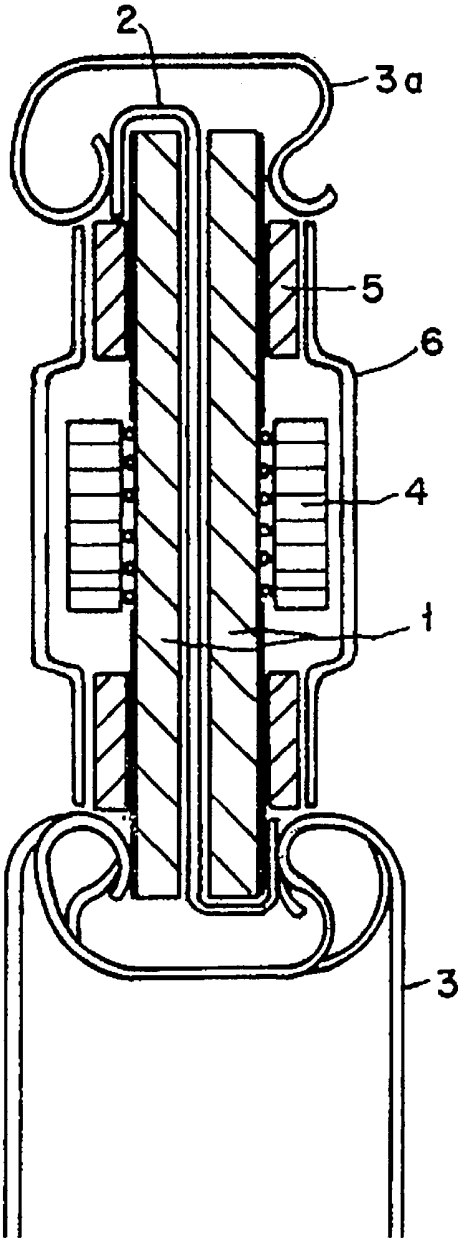

FIG. 2